

CLAIMS

1. A system for determining freight container locations in a freight yard comprising:

5 a plurality of remote receivers attachable to freight containers for intermittently receiving global positioning signals from the global positioning satellite system, each remote receiver including a transmitter;

a base station;

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means for communicating data between said remote receiver transmitters and said base station; and

15 the base station including means for receiving global positioning data of a remote receiver from said communicating means and for displaying the location of said remote receiver in said freight yard.

2. The system of claim 1, a number of said remote receivers including a microprocessor for determining the position of a respective remote receiver using said
20 global positioning signals.

3. The system of claim 1, said base station including a microprocessor for accepting global positioning signals from a number of said remote receivers and for determining the location of the respective remote receiver.

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4. The system of claim 1, including a reference receiver means positioned at a known position for receiving signals from the global positioning satellite system to determine a reference apparent position and for calculating an error correction based on the difference between the known position and the apparent position.

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5. The system of claim 4, a number of said remote receivers including means for calculating a correct position of a respective remote receiver in said freight yard using said error correction.
- 5 6. The system of claim 4, said base station being coupled to said reference receiver means and including means for applying the error correction to the global positioning data of a remote receiver and determining a correct position of a respective remote receiver in said freight yard.
- 10 7. The system of claim 1, a number of said remote receivers comprising a GPS antenna and amplifier, where the global positioning signals comprise timing data which are amplified and transmitted to the base station.
8. The system of claim 1, a number of said remote receivers including a battery for
15 supplying power to the remote receiver.
9. The system of claim 8, said remote receivers including a timer means for initiating periodic operation of the remote receiver to receive global positioning signals and to transmit data to the base station.
- 20 10. The system of claim 8, said remote receivers including motion detector means for initiating operation of the remote receiver to receive global positioning signals and to transmit data to the base station in response to movement of the remote receiver.
- 25 11. A method for determining freight container locations in a freight yard comprising:

attaching a number of receivers for GPS signals to a number of freight containers
in said freight yard;

intermittently operating each receiver to transmit an identification and position;
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receiving said identification and position at a base station; and

recording the identification and position of said receivers in said freight yard.

- 5 12. The method of claim 11, including the step of determining an error correction for the global positioning satellite system comprising the substeps of:

positioning a global positioning satellite receiver at a reference location having a known position;

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determining the apparent position of the reference location using the receiver;

calculating an error correction based on the apparent position and the known position of the reference location; and

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applying the error correction to the position of said receivers to determine a corrected position.

13. A system for determining freight container locations in a warehouse comprising:

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two or more pseudolites positioned within the warehouse and operable for transmitting GPS type signals within the warehouse;

a plurality of remote receivers attachable to freight containers within the warehouse for intermittently receiving said global positioning type signals from the pseudolites, each remote receiver including a transmitter for transmitting positioning data;

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a base station;

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means for communicating positioning data between said remote receiver transmitters and said base station; and

5 the base station including means for receiving positioning data of a remote receiver from said communicating means.

14. The system of claim 13, a number of said remote receivers including a microprocessor for determining the position of a respective remote receiver using said pseudolite positioning signals and said positioning data comprising the position of said
10 respective remote receiver.

15. The system of claim 13, a number of said remote receivers comprising a GPS antenna and amplifier, where the pseudolite positioning signals comprise timing data which are amplified and transmitted as said positioning data to the base station.

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16. The system of claim 13, each pseudolite including a GPS receiver for receiving timing correction signals from the global positioning satellite system.

17. The system of claim 13, the base station including means for displaying the
20 location of said remote receiver in said warehouse.